DRAFT ISC SECURITY DESIGN CRITERIA

For New Federal Office Buildings and

Major Modernization Projects

PART II: TABLES, DESIGN TACTICS, AND ADDITIONAL RISK GUIDELINES

PROJECT-SPECIFIC TABLES

As part of completing the project-specific risk assessment, your building's multidisciplinary project security team should use the tables here to determine appropriate criteria for the building. Table 1 provides design basis tactics and their severity levels.

Tables 2-9 are designed to communicate criteria and protection levels. They list levels of protection: Minimum, Low, Medium, and High, and provide countermeasures appropriate to each level. Team members can use columns 1-5 of the tables to select criteria that would provide the desired protection levels, and columns 6-8 to note constraints or other factors and final security solutions.

The tables are intended to be removed from the criteria, copied, and attached to additional sheets of project-specific details and information, as needed. The following is an explanation of the column headings:

- Building Element: the particular component or system being assigned a protection level;
- Criteria: a reference to each numbered countermeasure;
- Countermeasure: the method of protecting the building element against the designated tactic; this column contains summaries of the design criteria;
- Protection Level/Performance Standards: more specific information on the countermeasure needed to achieve the desired protection level. A dash (-) in this column means a criterion does not apply;
- Requirements/Remarks: the space for project-specific figures, such as explosive charge weights, distances, and locations. This area may also include information on operational procedures related to design;
- Considerations/Constraints: the place to fill in physical characteristics relating to the facility or site and non-technical constraints, such as those relating to cost or tenant needs. Requirements unrelated to security often constrain protective system design;
- Protective Measures to be Implemented: the final choice of design criteria and methods to enhance facility security.

Table 1 – Design Basis Tactics

Tactic Category	Criteria	Specific Tactic	Applicable?		Specific Requirements	Remarks
			Yes	No		
BOMBS	1.5.1.1	Moving Vehicle			_____ kg vehicle ____max km/h	
	1.5.1.2	Stationary Vehicle			_____ kg Location:	
	1.5.1.3	Mail			_____ kg Location:	
	1.5.1.4	Package or Supply			_____ kg Location:	
	1.5.1.5	Package Prior to Screening			_____ kg Location:	
	1.5.1.6	Explosives in Controlled Areas			_____ kg Location:	
	1.5.1.7	Vehicle within Facility			_____ kg Location:	
FORCED ENTRY & FIREARMS	1.5.2.1	Small Arms				
	1.5.2.2	Forced Entry & Attacks				
	1.5.2.3	Unauthorized Entry				
AIRBORNE CONTAMINANTS	1.5.4.1	Airborne Contamination with Chemical/Biological/ Radiological Substance				

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Table 2 –Site and Landscape Design

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards Minimum	Low	Medium	High	Require-ments/ Remarks	Additional Considera-tions /Con-straints	Protective Measures to be Imple-mented
Perimeter	2.1.1	Increase distance between vehicles and facility.	0 m (0 ft.)	1.5 m (5 ft.)	15 m (50 ft.)	30 m (100 ft.)	Distance=__ m		
Perimeter	2.1.2	Keep moving vehicles away from building.	_	_	Use barriers to stop __kg vehicle at __km/h	Use barriers to stop __kg. vehicle at __km/h	See Part II, 1.5.1.1		
Perimeter	2.1.3.1	Provide space for vehicle inspection.	_	_	Consider providing space.	Provide space.	Location:		
Perimeter	2.1.3.2	Provide features for vehicle inspection.	_	_	Consider features to stop vehicles, keep them from leaving inspection, and prevent tailgating.	Install features to stop vehicles, keep them from leaving inspection, and prevent tailgating.			

Site Lighting	2.2	Provide necessary lighting for security and cameras.	_	Yes	Yes	Yes			
Signage	2.3	Include appropriate signage to reduce confusion.	_	Yes	Yes	Yes			
Landscap-ing	2.4	Use design elements to enhance security.	_	Yes	Yes	Yes			

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Table 3 –Architecture and Interior Design

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards Minimum	Low	Medium	High	Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
Offices	3.1.1	Locate vulnerable offices out of public view (see 4.2.4.4.1 for windows).	_	_	Locate offices in safe sites in the building or treat windows.	Same as for Med.			
Offices	3.1.2	Separate high- and low-risk tenants.	_	Yes	Yes	Yes			
Public Service Areas	3.1.3	Do not place public toilets and service areas in unsecured locations.	_	_	Yes	Yes			
Interior Space	3.1.4	Provide areas of refuge.	_	_	_	Yes			
Service Docks	3.1.5	Separate loading docks and shipping and receiving from utilities.	_	Yes	Yes	Yes			

Retail Space	3.1.6	Design for retail and mixed uses, where appropriate.	Yes	Yes	Yes	Yes			
Stairwells	3.1.7	Locate emergency stairwells away from high-risk areas.	_	Yes	Yes	Yes			
Mailroom	3.1.8	Locate mailroom away from critical components; provide space for disposal container and/or other equipment.	Yes; dispos-al contain-er	Same as for Min.	Yes; disposal container and other equipment	Same as for Med.			
Interior Construction	3.2.1	Strengthen doors and walls at security screening.	_	_	Design to UL rating level 3.	Design to UL rating level 8.			
Interior Construction	3.2.2	Separate critical building components from high-risk areas (see also 4.2).	_	_	Harden critical components within 7.5 m (25 ft.) of high-risk areas.	Harden critical components within 15 m (50 ft) of high-risk areas.			

Entrances	3.3.1	Protect against forced entry (criteria located in Ch. 4).					See 4.2.		
Entrances	3.3.2	Provide space for security functions.	_	Yes	Yes	Yes			
Entrances	3.3.3	Co-locate public and employee entrances.	_	Yes	Yes	Yes			
Entrances	3.3.4	Stop unauthorized vehicles at garage and service entrances.	_	Yes	Yes	Yes			
Interior Features	3.4.1	Do not install features that could conceal devices in unsecured areas.	_	Yes	Yes	Yes			
Roof	3.4.2	Specify roof access design requirements.	Yes	Yes	Yes	Yes			

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Table 4 – Structural Engineering

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards Minimum	Low	Medium	High	Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
Procedures	4.1.1-4.1.5	Use specified definitions and procedures.	Yes	Yes	Yes	Yes			
Structural Elements	4.1.6	Protect non-structural elements.	_	_	Yes	Yes			
Structural Elements	4.1.7	Resist blast loads.	_	_	Yes	Yes			
Definitions	4.1.8	Select protection level.							
Structural Integrity	4.2.1	Design to prevent progressive collapse.	Yes	Yes	Yes	Yes			
Exterior Walls	4.2.3	Design walls for blast load.	_	_	Design walls for limited load. 4.2.3.1	Design walls for full load. 4.2.3.2	____ kPa ____ Pa-s		
Exterior Doors	4.2.3.3.1	Design swinging doors against forced entry.	_	Consider Grade 30.	Grade 30	Grade 40			

Exterior Doors	4.2.3.3.2	Design horizontal sliding door against forced entry.	_	Consider Grade 30.	Grade 30	Grade 40			
Exterior Walls	4.2.3.3.3	Design wall against forced entry.					Height _____		
Exterior windows	4.2.4	Design window for blast load.	Use any type of glazing. 4.2.4.1	Use window system that mini-mizes potential threats. 4.2.4.2	Design up to 28 kPa (4 psi) & 190 Pa-s (28 psi-msec), Perform-ance condition s 1-4. 4.2.4.3	Design up to 69kPa (10 psi) & 610 Pa-s (89 psi-msec), Perform-ance conditions 1-3. 4.2.4.3	____ kPa ____ Pa-s ____ % fenestra-tion ____ % meeting perform-ance standard		
Exterior Windows	4.2.4.4.1	Provide ballistic glazing.	_	_	UL Rating Level 3	UL Rating Level 8	Level ___ Locations:		
Exterior Windows	4.2.4.4.3	Design window assemblies against forced entry.	_	Consider Grade 30.	Grade 30	Grade 40	Locations:		
Non-Window Openings	4.2.5	Provide protection level.	_	_	Yes	Yes			

Interior Windows	4.2.6	Specify interior window requirements.							
Interior Parking	4.2.7.1	Protect primary vertical load carrying members.	_	_	Yes	Yes			
Interior Parking	4.2.7.2	Design columns for multi-floor unbraced length.	_	_	Yes	Yes			
Lobbies	4.2.8.1	Protect primary vertical load carrying members.	_	_	Yes	Yes			
Lobbies	4.2.8.2	Design primary vertical load carrying members for specified threat.	_	_	Yes	Yes			
Loading Docks	4.2.9	Design to limit damage done to adjacent areas.	_	_	Yes	Yes			

Mailrooms, Unscreened Retail	4.2.10	Design to limit damage to adjacent areas.	_	_	Yes	Yes	Location:		
Venting	4.2.11	Facilitate venting of blast forces and gases.	_	Yes	Yes	Yes			
Modern-ization of Existing Construction	4.3	Requirements are the same as for new construction except for 4.3.1, 4.3.2.	Yes	Yes	Yes	Yes			
Modern-ization of Existing Construction	4.3.1	Submit documenta-tion.	Yes	Yes	Yes	Yes			
Modern-ization of Existing Construction	4.3.2	Retrofit for progressive collapse if the facility will undergo a structural renovation.	Yes	Yes	Yes	Yes			
Historic Buildings	4.4	Protect historic buildings.	Yes	Yes	Yes	Yes			
Good Practices	4.5	Follow guidelines.	Yes	Yes	Yes	Yes			

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Table 5 – Mechanical Engineering

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards				Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
			Minimum	Low	Medium	High			
Mechanical Operations	5.1.1	Adopt NIOSH recommenda-tions.	Yes	Yes	Yes	Yes			
Filters	5.1.2	Use MERV 13 filter or functional equivalent	_	Yes	_	_			
Filters	5.1.3	Use HEPA filter or functional equivalent.	_	_	Yes	Yes			
Filters	5.1.4	Use gas adsorption filters on outside air intakes.	_	_	Yes	Yes			
Filters	5.1.5	Use gas adsorption filters on recirculated air.	_	_	_	Yes			
Space for Detection	5.1.6	Leave space for sensors and access to AHU.	_	_	Yes	Yes			

Air Intakes	5.2.1	Place air intakes at high level.	Yes	Yes	Yes	Yes			
Utilities	5.3.1	Locate utilities away from vulnerable areas.	_	_	Yes	Yes			
Utilities	5.3.2	Protect incoming utilities.	_	_	Yes	Yes			
Water Supply	5.3.3	Consider using off-the-shelf counter-measures	_	_	_	Yes			
Ventilation System	5.4.1	Protect ventilation equipment and locate away from high risk areas.	_	_	Yes	Yes			
Ventilation System	5.3.2	Maintain positive pressure in stairways.	_	_	Yes	Yes			

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Table 6 – Electrical Engineering

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards Minimum	Low	Medium	High	Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
Service and Distribution	6.1.1	Separate normal and emergency electrical power.	_	Yes	Yes	Yes			
Service and Distribution	6.1.2	Locate normal fuel storage away from high risk areas.	_	Yes	Yes	Yes			
Service and Distribution	6.1.3	Protect emergency fuel storage.	_	Yes	Yes	Yes	___ hr. storage		
Service and Distribution	6.1.4	Provide tertiary power.	_	_	_	Yes			
Service and Distribution	6.1.5	Locate emergency generator away from high risk areas.	_	Yes	Yes	Yes			
Service and Distribution	6.1.6	Locate utilities and feeders away from high risk areas.	_	Yes	Yes	Yes			

Lighting	6.2.1	Coordinate site lighting with CCTV system.	Yes	Yes	Yes	Yes			
Lighting	6.2.2	Provide emergency power for restroom lighting.	_	_	Yes	Yes			
Lighting	6.2.3	Provide battery lighting for stairwells and exit signs.	_	_	Yes	Yes			
Communi-cation Systems	6.3.1.1	Provide redundant telephone service.	_	_	_	Yes			
Communi-cation Systems	6.3.1.2	Install portable radio communication system.	_	_	Yes	Yes			
Communi-cation Systems	6.3.2	Provide wireless data communication .	_	_	_	Yes			
Communi-cation Systems	6.3.3	Use multiple paths to distribute alarm and information wiring.	_	_	Yes	Yes			

Security Control Equipment and Power	6.3.4	Provide empty conduits and power outlets.	_	_	Yes	Yes			

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Table 7 – Fire Protection Engineering

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards				Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
			Minimum	Low	Medium	High			
Water Supply	7.2.1	Protect water main.	Yes	Yes	Yes	Yes			
Water Supply	7.2.2	Use one electric and one diesel pump, located separately.	_	_	_	Yes			
Egress Door Locks	7.2.3	Comply with NFPA 101 on egress door locks.	Yes	Yes	Yes	Yes			
Operational Procedures	7.3.1, 7.3.2	Create OEP manual; provide emergency training; maintain documents.	Yes	Yes	Yes	Yes			

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Table 8 – Electronic Security

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards				Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
			Minimum	Low	Medium	High			
Control Centers	8.1.1	Coordinate OCC, FCC, and SCC.	Provide inform-ation links. 8.1.1.2	Provide inform-ation links. 8.1.1.2	Co-locate OCC, FCC, and SCC. 8.1.1.1	Co-locate OCC, FCC, and SCC. 8.1.1.1			
Control Centers	8.1.2	Provide a backup control center.	_	_	Locate backup station in existing office. 8.1.2.1	Install a redundant BCC. 8.1.2.2			
Utility Rooms	8.2.1	Provide for key system security.	Yes	Yes	Yes	Yes			
Utility Rooms	8.2.2	Design for remote monitoring of access.	_	_	Yes	Yes			
Devices and Alarms	8.3.1	Provide elevator recall button at FCC.	Yes	Yes	Yes	Yes			

Devices and Alarms	8.3.2	Install prerecorded emergency message on elevators.	Yes	Yes	Yes	Yes			
Door Locks	8.4.1	Provide security key system.	No special key system. 8.4.1.1	Use security key system. 8.4.1.2	Use high security key system. 8.4.1.3	Provide electronic locks. 8.4.1.4			
Intrusion Detection	8.4.2.1	Use magnetic reed switches.	Yes	Yes	Yes – interior doors.	Yes – interior doors.	Locations:		
Intrusion Detection	8.4.2.2	Have glass break sensors.	_	Yes	Yes	Yes			
Intrusion Detection	8.4.2.3	Provide balanced magnetic contact switch sets.	_	_	Yes	Yes	Locations:		
Monitor-ing	8.4.3	Provide monitoring station.	Monitor at off-site facility. 8.4.3.1	Monitor at off-site facility. 8.4.3.1	Have business hours monitorin g by on-site center. 8.4.3.2	Have 24 hour monitoring by on-site center. 8.4.3.3	Location:		
Monitor-ing	8.4.4	Provide color/ monochrome CCTV system. (See 6.2.1)	_	_	Yes	Yes	Locations:		

Monitor-ing	8.4.5	Provide duress alarms.	Yes	Yes	Yes	Yes	Locations:		

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Table 9 – Parking Security

Building Element	Criteria	Counter-measures	Protection Levels/ Performance Standards Minimum	Low	Medium	High	Require-ments/ Remarks	Additional Considera-tions/Con-straints	Protective Measures to be Imple-mented
Adjacent Street Parking	9.1.1	Restrict adjacent street parking.	Allow unre-stricted parking. 9.1.1.1	Allow only govern-ment-owned and key employee parking. 9.1.1.2	Allow only governme nt-owned and key employee parking. 9.1.1.2	Use parking lane for stand-off. 9.1.1.3			
Adjacent Property Parking	9.1.2	Maintain prescribed distance between parked cars and facility.	0 m (0 ft.)	1.5 m (5 ft.)	15 m (50 ft.)	30 m (100 ft.)			

Internal Parking	9.1.3	Restrict internal parking.	Allow public parking with ID check. 9.1.3.1	Allow only govern-ment vehicles and employ-ees of the building. 9.1.3.2	Allow only selected govern-ment employ-ees. 9.1.3.3	Allow only selected govern-ment employees with need for security. 9.1.3.4			
On–site Surface or Structured Parking	9.1.4	Maintain prescribed distance between parked cars and facility.	0 m (0 ft.)	Only employee vehicles within 7.5 m (25 ft.)	Only employee vehicles within 15 m (50 ft)	30 m (100 ft). standoff for public parking; 9.1m (30 ft) standoff for employee parking.			
Parking Facilities	9.2.1	Design to enhance natural surveillance.	Yes	Yes	Yes	Yes			
Parking Stairs and Elevator Lobby	9.2.2.1	Have open stair tower and elevator lobby.	_	_	Yes	Yes			

Parking Elevator	9.2.2.2	Provide glass-back elevator cabs, security lighting.	_	_	Yes	Yes			
Parking Access Control	9.2.3.1	Consider alternatives to fencing.	Yes	Yes	Yes	Yes			
Parking Access Control	9.2.3.2	Use fencing, grills, or doors to close access when necessary.	_	_	Yes	Yes			
Parking Access Control	9.2.3.3	Provide details of parking access control system.							
Parking Signage	9.2.4	Provide clear signage and light surface finishes.	_	Yes	Yes	Yes			
Parking Lighting	9.2.5	Maintain adequate lighting levels.	Yes	Yes	Yes	Yes	Level ____		
Parking Duress Stations	9.2.6	Provide emergency duress stations.	_	_	Yes	Yes	Locations:		

Parking CCTV	9.2.7.1	Provide CCTV cameras at entry and exit ramps.	_	_	Yes	Yes			
Parking CCTV	9.2.7.2	Provide cameras at outside doors.	_	_	Yes	Yes			

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Additional Risk Guidelines and Design Tactics

The following are FOUO additions to the criteria found in Part I of the document. The numbers correspond to the chapter and criterion numbering in Part I.

1.3.4 Risk Factors

For the purposes of the Criteria, risk levels are rated Minimum, Low, Medium, or High. A Very High risk level could be assigned, but is beyond the scope of these criteria. The risk levels are communicated by tactic severity. For example, the vehicle bomb tactic is categorized according to the varying charge weights of the explosives. The lowest weight dealt with in this document is considered a Minimum risk; the heaviest weight is a High risk.

A building-specific risk assessment should consider the following factors, at a minimum:

- Symbolic Importance: some facilities are highly visible symbols of this country, either nationally, regionally, or locally. The World Trade Towers were icons of the New York skyline and American financial activity; the Alfred P. Murrah Federal Building was the primary symbol of the U.S. Government in Oklahoma City;
- Criticality: this measures the degree to which a building houses operations and functions critical to national or regional interests of the United States;
- Consequence: this measures a successful attack's impact on a building's occupants, assets, and functions, as well as on the larger community;
- Threats: these are classified as either criminal or terrorist threats. Tactics may include bombs, forced entry, chemical and biological attacks, criminal acts, etc.

1.4 Co-location

Agencies that are functionally similar or that require similar levels of protection should be housed in the same location. It may not be advisable to co-locate high-risk tenants, such as law enforcement agencies with lower risk tenants. If co-location can not be avoided, high-risk tenants should be segregated from publicly accessible areas.

1.5 Tactics

It is important to try to identify an aggressor's likely strategy and the severity of risk to a building. The section below categorizes these strategies into various tactics. For each tactic, the severity of the risk is described from Minimum to

High, depending on the events the risk assessment concludes are most likely to occur.

1.5.1 Bombs

1.5.1.1 Moving vehicle bomb:

For Minimum and Low Protection, no special construction;
For Medium Protection, the size is an 1800 kg (4,000 lb.) vehicle at the maximum practical approach speed up to 48 km/h (30 mph);
For High Protection, the size is a 6800 kg (15,000 lb.) vehicle at the maximum practical approach speed up to 80 km/h (50 mph).

1.5.1.2 Stationary exterior vehicle bomb (an aggressor covertly parks an explosives-laden car or truck near a facility, at least 6.1 m (20 ft.) from the exterior wall):

For Minimum and Low Protection, no special construction;
For Medium Protection, the size is a minimum of 45 kg (100 lbs.) of TNT equivalent;
For High Protection, the size is a minimum of 230 kg (500 lbs). of TNT equivalent.

1.5.1.3 Mail bombs (the aggressor delivers bombs or incendiary devices to the target in letters or packages. The bomb sizes involved are relatively small) (see Part I, 4.2.8):

For Minimum and Low Protection, no special construction;
For Medium and High Protection, the size is 2.3 kg (5 lbs.).

1.5.1.4 Medium and large size package or supply bombs (at supply and material handling points such as loading docks):

For Minimum and Low Protection, no special construction;
For Medium and High Protection, the size is 23 kg (50 lbs.).

1.5.1.5 Small package bombs in uncontrolled public areas, prior to screening (see Part I, 4.2.8):

For Minimum and Low Protection, no special construction;
For Medium Protection, the size is 4.5 kg (10 lbs.);
For High Protection, the size is 23 kg (50 lbs.) for progressive collapse and 4.5 kg (10 lbs.) for non-progressive collapse.

1.5.1.6 The introduction of explosives within controlled areas (see Part I, 4.2.8):

For Minimum and Low Protection, no special construction;
For Medium and High Protection, the size is 0.9 kg (2 lbs.).

Specify critical building systems or areas of the building to which this applies (e.g., floors, HVAC, structure).

1.5.1.7 Stationary vehicle bomb inside the building:

For Minimum and Low Protection, no special construction;
For Medium and High Protection, the size is 23 kg (50 lbs.).

1.5.2 Forced Entry and Firearms

1.5.2.1 Small arms - glazing only:

For Minimum and Low Protection, no special construction;
For Medium and High Protection, use concealment and ballistic-resistant glazing.

Concealment may include blinds, drapes, reflective film, and other visual barriers.

1.5.2.2 Attacks and forced entry at the building envelope:

For Minimum and Low Protection, no special construction;
For Medium and High Protection, use CCTV and electronic sensors; consider necessary response time.

1.5.2.3 Unauthorized entry (the aggressor attempts to enter a facility by using false credentials or stealth. The aggressor may carry weapons or explosives into the facility):

For Minimum and Low Protection, use locks and alarms;
For Medium Protection, use locks and alarms plus electronic access control, intrusion detection, and CCTV;
For High Protection, use locks and alarms plus electronic access control, screening and intrusion detection, and CCTV.

1.5.4 Airborne Contaminants

1.5.4.1 Tactics include both an interior and exterior release of a chemical, biological, or radiological substance. The type and quantity of the substance have not been defined, but the substances are assumed to be very hazardous to health. The criteria address only airborne substances.

For Minimum Protection, follow NIOSH guidance;

For Low Protection, use MERV 13 filter or equivalent;
For Medium and High Protection, use HEPA filter or equivalent;
For Medium Protection, use gas adsorber for outside air intakes;
For High Protection, use gas adsorber for outside and return air;
For Medium and High Protection, design for future sensors.

1.6 Classification

1.6.1 Part I of the Criteria is unclassified.

1.6.2 Part II is FOUO. It is submitted also in a Predecision Draft form and therefore exempt from disclosure under the Freedom of Information Act (FOIA). It is expected to remain in draft form until the risk assessment system is developed.

1.6.3 Tables 1 to 9 may be classified when completed with project-specific information.

2.1 Vehicular Control

One design strategy to mitigate blast effects is to maintain as much distance as possible between a vehicle bomb and the facility. The following distances are recommended to achieve the designated protection levels for blast:

Protection Level	Distance
Minimum	0 meters (0 feet)
Low	1.5 meters (5 feet)
Medium	15 meters (50 feet)
High	30 meters (100 feet)

An alternative to distance for blast is the acceptance of some higher degree of risk. As long as the building is designed to prevent progressive collapse and meets the blast pressure design requirements of Chapter 4 criteria, a baseline of protection is provided.

Whereas previously, the only option was to use the above distances based on blast, now designers and planners can choose the smaller distances (often less than 35 feet) based on progressive collapse, knowing that they may be accepting more risk, but also knowing they will have a significant amount of protection.

The minimum acceptable distance is that required to meet progressive collapse criteria (often less than 10 m [35 ft.]). For additional information on progressive collapse distance, see http://www.oca.gsa.gov.

4.0 Risk Guidance

4.2.3.1 For Medium Protection, the most commonly used pressures are 28 kPa (4 psi) (design pressure) and 190 Pa-s (28 psi-msec).

4.2.3.2 For High Protection, the suggested design pressures are 69 kPa (10 psi) (incident pressure) and 610 Pa-s (89 psi-msec).

4.2.3.3 Forced Entry - Provide the designer with the grade (30 or 40) for each.

4.2.4.3 Design up to specified load:

Design up to 28 kPa (4 psi) and 190 Pa-s (28 psi-msec) – applies to Medium Level, Performance conditions 1 through 4 (see Figure 4-2 in Part I).

Design up to 69 kPa (10 psi) and 610 Pa-s (89 psi-msec) – applies to High Level, Performance conditions 1 through 3 (see Figure 4-2 in Part I).

A common goal is that 90% of the glazing should meet the performance standard specified. This means that up to 10% of the windows will fail catastrophically under the 28 and 69 kPa (4 and 10 psi) design criteria (see Part I, 4.2.4.1). The results from actual pressure and impulse will be much higher than the design requirements – they may be tens of psi or hundreds of kPa (psi).

The 90% requirement assumes a rectangular building with glass on four sides. A blast at the center of one side of the building may cause the failure of 40% of the glass on that side, resulting in an unsatisfactory performance condition as defined by Figure 4-2 in Part I. Two factors to consider are buildings that do not have four exposed sides and glass response at higher pressure levels.

To achieve the same protection level on a building with glass on only two sides, the requirement would be 80%.

4.2.4.4.1 Choose one of the following protection levels for ballistic windows:

Minimum and Low: NA
Medium: UL Rating Level 3
High: UL Rating Level 8

Provide locations, such as at the lower levels of the building.

4.2.4.4.3 Indicate whether resistance of window assemblies against forced entry applies and the grade (30 or 40); provide locations, such as at the lower levels of the building.